Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

UPPER HUMBOLDT RIVER BASIN

		STREAMFLOW FORECASTS						
		<-----DRIER------ FUTURE CONDITIONS -----WETTER------>						
		Chance of Exceeding						
FORECAST POINT	FORECAST PERIOD	90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25 YR. (1000AF)
MARY'S RIVER nr Deeth	MAR-JUL	5.0	20.0	36	77	52	76	47
	APR-JUL	8.0	17.0	31	74	45	67	42
LAMOILLE CREEK nr Lamoille	MAR-JUL	6.0	16.0	24	79	32	43	31
	APR-JUL	4.0	15.0	22	75	30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0	43	73	74	121	59

For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

IDAHO WATER SUPPLY OUTLOOK REPORT

JANUARY 1, 1992

SUMMARY

AFTER NEARLY FIVE CONSECUTIVE YEARS OF BELOW NORMAL SNOWPACK IN SOUTHERN AND CENTRAL IDAHO, WATER USERS ARE HOPING FOR A CHANGE IN 1992. SNOWPACK CONDITIONS IN MOST AREAS ARE CURRENTLY BETTER THAN LAST YEAR AT THIS TIME, BUT ARE STILL BELOW NORMAL IN SEVERAL BASINS. MANY RESERVOIRS IN SOUTHERN AND CENTRAL IDAHO ARE CRITICALLY LOW. RESERVOIR STORAGE WILL BE A KEY FACTOR IN DETERMINING THE 1992 WATER SUPPLY IN MANY BASINS.

SNOWPACK

Idaho's mountain snowpack shows an improvement over last year at this time across most of central and southern Idaho. Snowpacks are near to above average in northern, central, and eastern Idaho, and near to below average in southwest and southeastern Idaho. Due to warm temperatures and rainfall, many low elevation sites are reporting well below normal snowpacks even though high elevation sites are reporting average conditions. With approximately sixty percent of the winter accumulation season yet to come, there is still uncertainty as to the outcome of this year's winter snowpack. Abundant snowfall is needed in many basins to overcome the low reservoir storages and ensure an adequate water supply for the coming irrigation season.

PRECIPITATION

The 1992 water year started with several weeks of warm and dry weather. This pattern changed during the last two weeks of October when heavy rain and snow left southern and central Idaho with normal or above normal totals for the month, while the northern portion of the state received below average precipitation. November continued the wet pattern with storms spreading into northern Idaho as well, and most of the state reported above average precipitation for the month. December was disappointing across the entire state with most stations reporting below average precipitation. Currently, water year to date mountain precipitation is near to slightly below average across the entire state, ranging from 105% of average in the Clearwater basin to 83% in the Great Basin of southeast Idaho.

RESERVOIRS

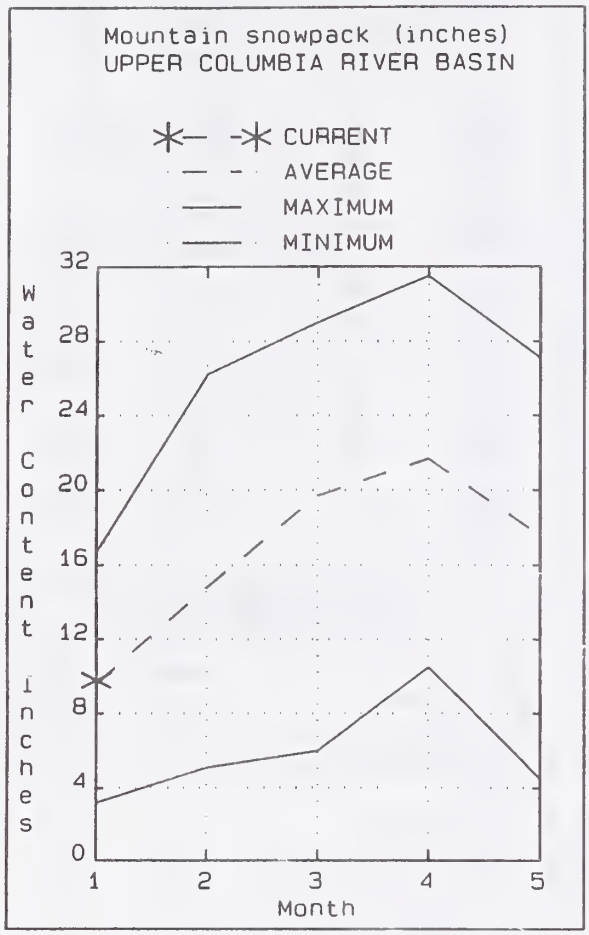
Current storage values in most of central and southern Idaho's reservoirs are the legacy of five years of below normal precipitation. Combined storage in the Boise basin is the lowest on record, with the three main reservoirs reporting only 24% of capacity. Elsewhere, conditions are also dismal with Magic, Little Wood, Oakley, Salmon Falls, and Owyhee reservoirs reporting less than 20% of capacity. On the bright side, reservoirs in the upper Snake basin and the Payette basin report near average and above average conditions, respectively. Irrigators who rely on stored irrigation water should keep in touch with their local irrigation districts for more specific information.

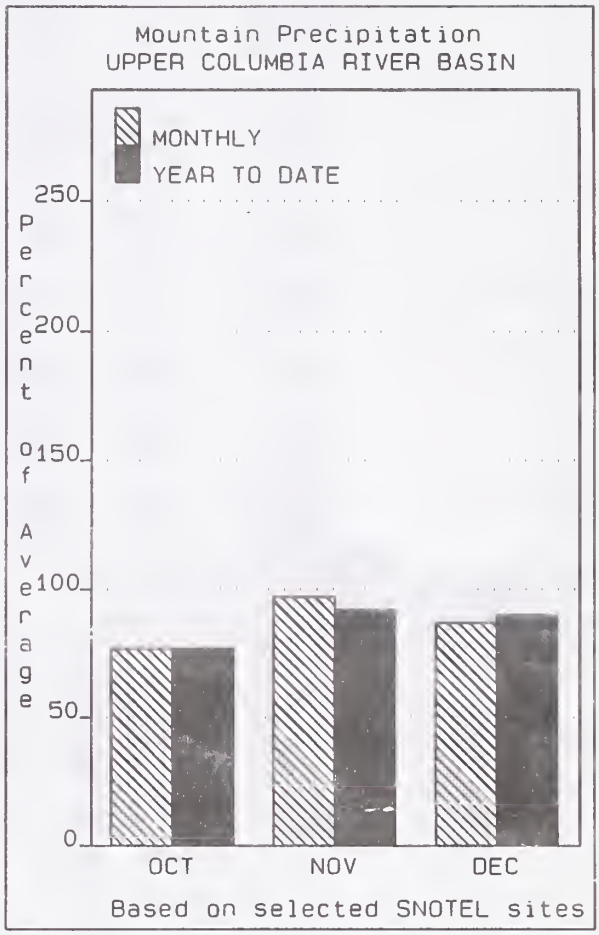
STREAMFLOW

Fall streamflow was below normal throughout most of Idaho and the upper Snake in Wyoming. This is a result of the continuing dry conditions which have persisted for the past five years. October through December runoff was in the 60 to 80% of average range from the Clearwater basin through central and southern Idaho while the upper Snake River was slightly better with 80 to 90% of average flows. These fall streamflow conditions are very similar to last year. Forecasts for central Idaho watersheds range from 60% of average for the inflow to Magic Reservoir, to 70% of average for the Boise near Boise, and 95% of average for the North Fork Payette. The upper Snake and Salmon basins are forecast near to below normal, ranging from 78% of normal on the Salmon River at Salmon to 93% on the Snake near Heise. The Clearwater and Panhandle streams are forecast to produce near to above normal seasonal volumes this year, ranging from 88 to 106% of normal.

Upper Columbia River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

Precipitation in the Idaho Panhandle was below normal in October and December and slightly above normal in November. This followed a very dry September with less than 20% of normal precipitation. Snowpacks currently range from 110% of normal in the Pend Oreille basin to 43% of normal on the Rathdrum basin, a low elevation watershed. All forecasts in the upper Columbia basin are for near normal runoff conditions. Unless precipitation patterns change greatly, water supply should be adequate in northern Idaho.

UPPER COLUMBIA RIVER BASIN
Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
KOOTENAI at Leonia (1,2)	APR-SEP	5120	6990	7840	95	8690	10600	8275
	APR-JUL	4450	6080	6820	95	7560	9190	7199
	APR-JUN	3520	4830	5420	95	6010	7320	5701
CLARK FK at Whitehorse Rpds (1,2)	APR-SEP	5970	9710	11400	88	13100	16800	12910
	APR-JUL	5470	8860	10400	89	11900	15300	11730
	APR-JUN	4640	7540	8850	88	10200	13100	10050
PEND OREILLE LAKE inflow (1,2)	APR-SEP	6710	10800	12600	88	14400	18500	14370
	APR-JUL	6120	9820	11500	87	13200	16900	13150
	APR-JUN	5350	8410	10000	88	11600	14700	11390
PRIEST nr Priest River (1,2)	APR-SEP	450	675	780	90	885	1110	868
	APR-JUL	420	635	730	90	825	1040	814
COEUR D'ALENE at Enaville (1)	APR-SEP	380	660	790	95	920	1200	830
	APR-JUL	360	630	750	95	870	1140	789
ST. JOE at Calder	APR-SEP	805	1000	1130	88	1260	1460	1281
	APR-JUL	750	940	1070	88	1200	1390	1211
SPOKANE nr Post Falls (1,2)	APR-SEP	810	2080	2660	94	3240	4510	2820
	APR-JUL	785	2010	2570	94	3130	4360	2723

UPPER COLUMBIA RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	2110.0	2840.0	2586.0
FLATHEAD LAKE	1791.0	1022.0	1255.0	1305.0
PEND ORIELLE	1501.2	541.2	598.8	744.9
NOXON RAPIDS	335.0	322.3	328.7	317.1
COEUR D'ALENE	291.2	74.4	167.2	207.7
PRIEST LAKE	97.7	21.8	25.0	35.2

UPPER COLUMBIA RIVER BASIN
Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	24	56	92
Moyie River	2	50	78
Pend Oreille River	64	84	111
Clark Fork River	47	99	117
Priest River	4	88	86
Rathdrum Creek	4	75	46
Hayden Lake	0	0	0
Coeur d'Alene River	5	89	103
St. Joe River	2	82	110
Spokane River	11	84	89
Palouse River	1	75	69

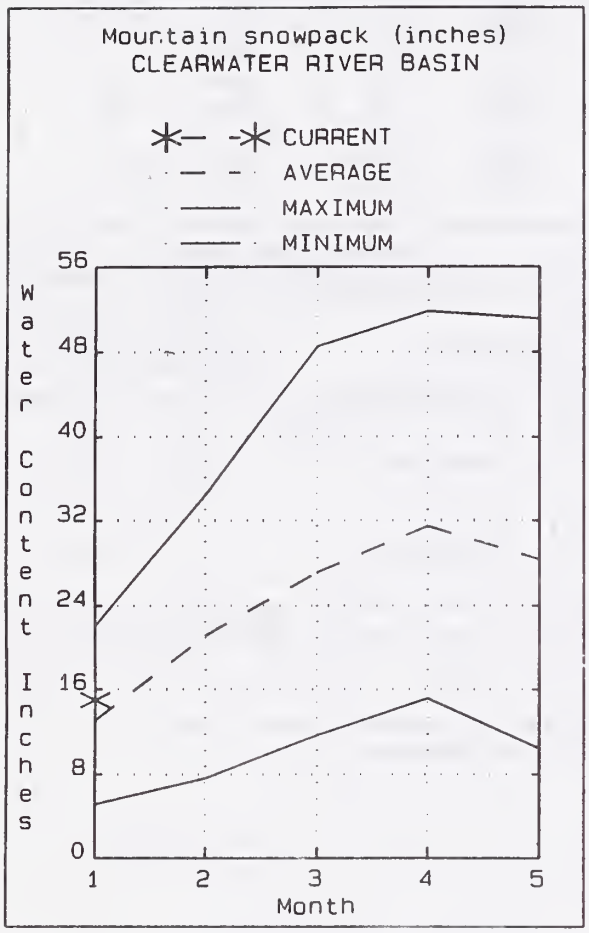
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

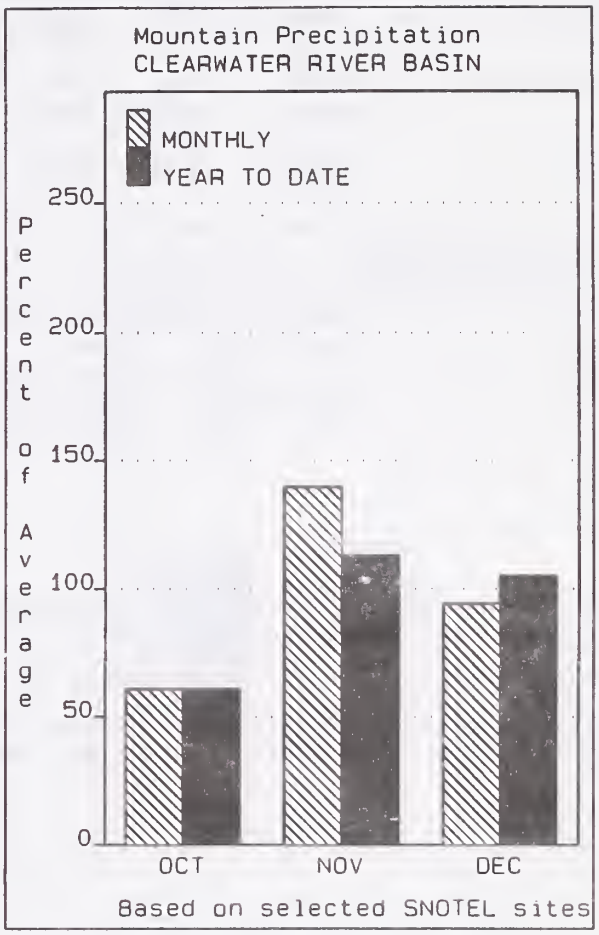
The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Clearwater River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

The Clearwater River basin hosts the highest snowpack percentages within Idaho. The early season snowpack got off to a good start with 140% of normal mountain precipitation in November. Currently, snowpacks within the Clearwater basin range from 110 to 116% of normal. Dworshak Reservoir storage is 60% of normal for this time of year. Streamflow forecasts range from 88% for the Clearwater at Orofino to 106% for the inflow to Dworshak Reservoir. Current conditions indicate that water supplies should be adequate in the Clearwater basin during 1992.

CLEARWATER RIVER BASIN
Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
DWORSHAK RESERVOIR inflow (1)	APR-SEP	1870	2780	3200	106	3620	4530	3010
	APR-JUL	1750	2610	3000	106	3390	4250	2822
CLEARWATER at Orofino (1)	APR-SEP	2230	3830	4560	88	5290	6890	5163
	APR-JUL	2120	3640	4330	89	5020	6540	4889
CLEARWATER at Spalding (1,2)	APR-SEP	4270	6990	8230	98	9470	12200	8378
	APR-JUL	4050	6620	7790	98	8960	11500	7916

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3467.8	1453.1	2576.2	2431.0

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	12	85	111
Lochsa River	4	81	110
Selway River	5	91	116
Clearwater River	19	86	112

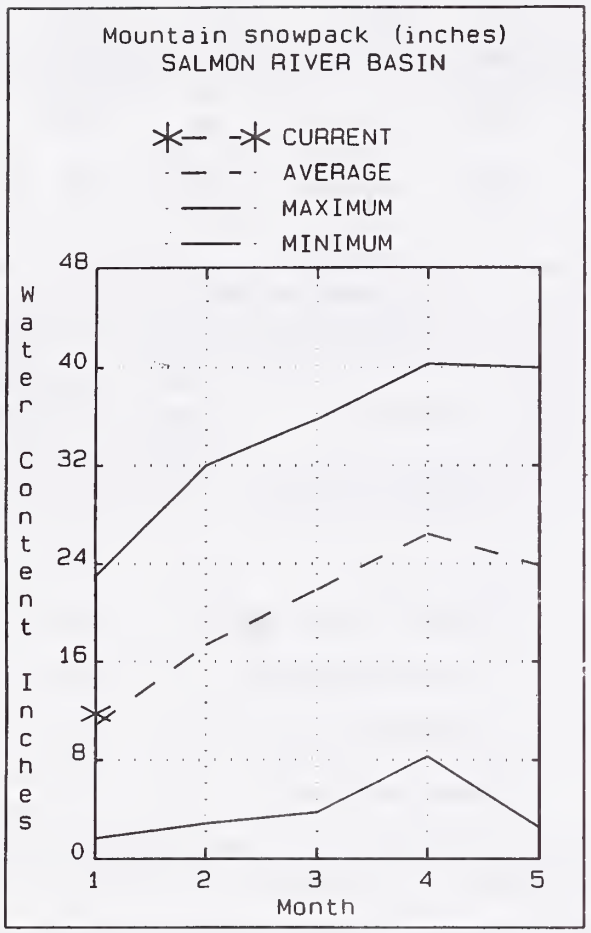
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

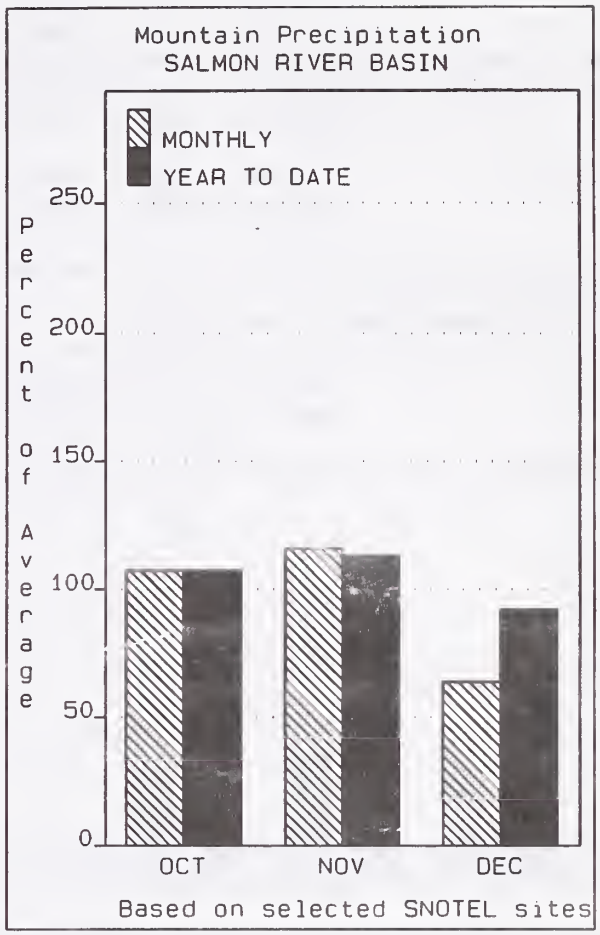
The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Salmon River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

Precipitation in the Salmon basin was below normal in October and December and much above normal in November. November precipitation ranged from 84% of normal at the southern portion of the basin to 170% of normal in the northwestern part of the basin. Currently, snowpacks are near normal for the basin and range from 116% of normal on the Lemhi River to 95% on the Salmon River above Salmon. Streamflow forecasts indicate below normal conditions for April through September and range from 78 to 87% of normal.

SALMON RIVER BASIN
Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-SEP	325	685	845	78	1010	1360	1077
	APR-JUL	280	580	720	78	860	1160	919
SALMON at White Bird (1)	APR-SEP	3470	5260	6070	87	6880	8670	7007
	APR-JUL	3130	4750	5480	87	6210	7830	6322

SALMON RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN
Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	8	152	95
Lemhi River	4	158	116
Middle Fork Salmon River	3	173	99
South Fork Salmon River	3	170	108
Little Salmon River	4	213	100
Salmon River Total	23	157	105

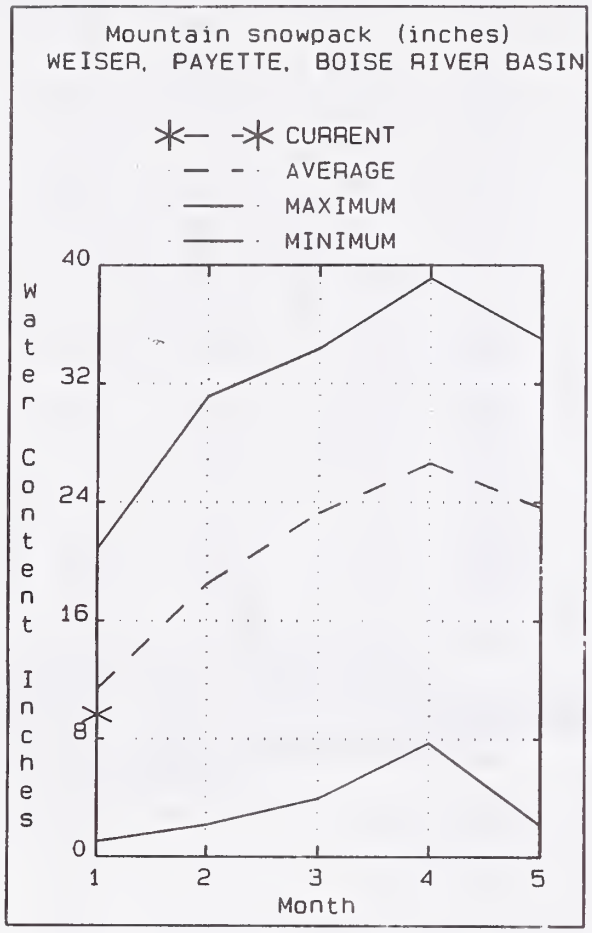
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

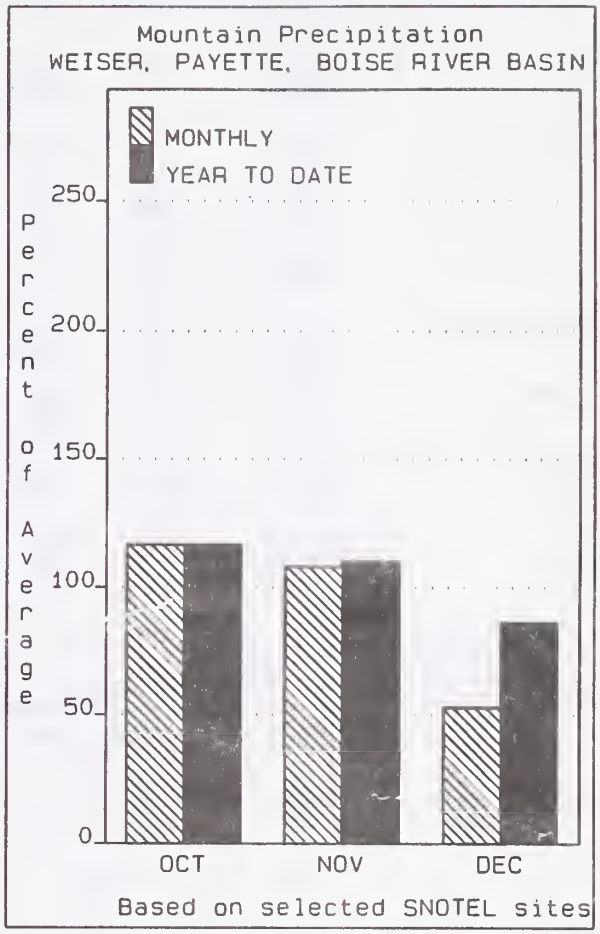
The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Weiser, Payette, and Boise River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

Precipitation for the first two months of this water year was near normal in these basins. This provided a good start for the early season snowpack and helped to improve the soil moisture at the onset of winter. December precipitation, however, was only 50% of normal. Current snowpack conditions in the basin range from 72% of normal for the Boise drainage to 96% for the Payette River. Reservoir storage is excellent on the Payette, 105% of average, but the Boise drainage reports only 24% of average, an all time low for January 1. Streamflow forecasts indicate below normal runoff for the Boise basin and 88 to 95% of average for the Payette. Water users on the Boise system should be prepared for below average water supplies unless conditions change during the rest of the snow accumulation season.

WEISER, PAYETTE, AND BOISE RIVER BASIN
Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
WEISER nr Weiser (1)	APR-SEP	44	230	310	70	390	575	444
	APR-JUL	41	215	290	70	365	540	414
SF PAYETTE at Lowman	APR-SEP	315	395	450	88	505	585	512
	APR-JUL	270	350	400	88	450	530	454
DEADWOOD RESERVOIR inflow (1)	APR-JUL	79	114	131	92	150	183	143
NF PAYETTE at Cascade (1,2)	APR-SEP	330	475	540	95	605	750	568
	APR-JUL	305	445	505	95	565	705	531
NF PAYETTE nr Banks (2)	APR-SEP	480	610	700	95	790	920	737
	APR-JUL	450	570	655	95	740	860	691
PAYETTE nr Horseshoe Bend (1,2)	APR-SEP	970	1470	1690	91	1910	2410	1862
	APR-JUL	900	1350	1560	91	1770	2220	1717
BOISE nr Twin Springs (1)	APR-SEP	300	465	540	75	615	780	722
	APR-JUL	260	420	490	74	560	720	664
SF BOISE at Anderson Rnch Dm (1,2)	APR-SEP	225	375	445	72	515	665	619
	APR-JUL	200	350	415	72	480	630	578
BOISE nr Boise (1,2)	APR-SEP	595	975	1150	71	1320	1710	1628
	APR-JUL	515	885	1050	70	1220	1590	1508
	APR-JUN	485	795	935	70	1080	1390	1334

WEISER, PAYETTE, AND BOISE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.3	1.3	2.0	4.2
CASCADE	703.2	457.3	490.1	419.7
DEADWOOD	162.0	59.1	78.9	73.7
ANDERSON RANCH	464.2	89.0	180.5	319.9
ARROWROCK	286.6	100.6	161.5	193.8
LUCKY PEAK	307.0	59.9	70.0	94.5
LAKE LOWELL (DEER FLAT)	177.0	71.3	56.5	126.0

WEISER, PAYETTE, AND BOISE RIVER BASIN
Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	164	74
Weiser River	3	196	83
North Fork Payette	7	187	106
South Fork Payette	4	171	88
Payette River Total	12	175	96
Middle & North Fork Boise	7	137	76
South Fork Boise River	7	148	74
Moores Creek	4	101	65
Boise River Total	14	131	72
Canyon Creek	1	180	58

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Basin Outlook Reports.

USDA-Soil Conservation Service
Boise, ID

C S
BIND
FREQ

VC#60012

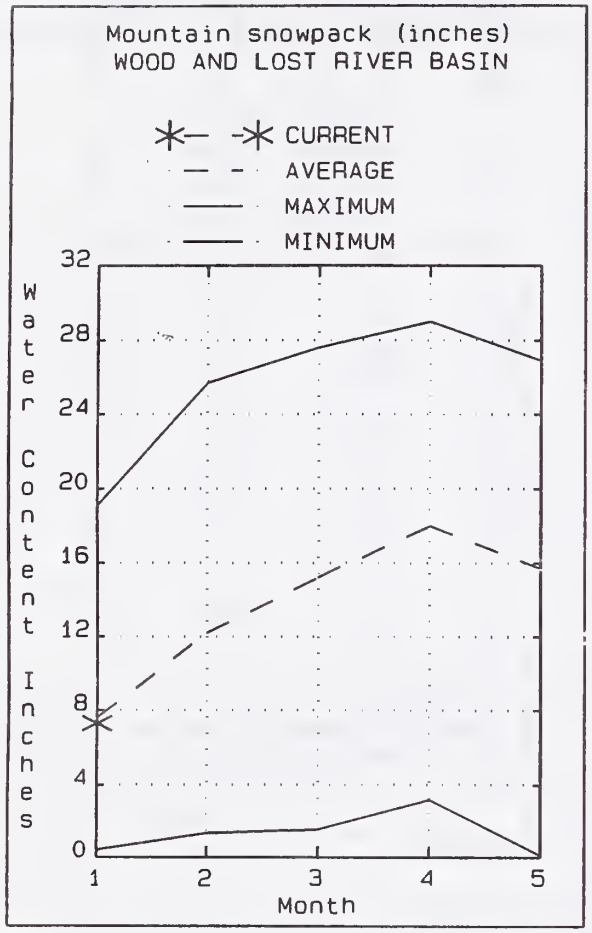
Conf 1/28/91

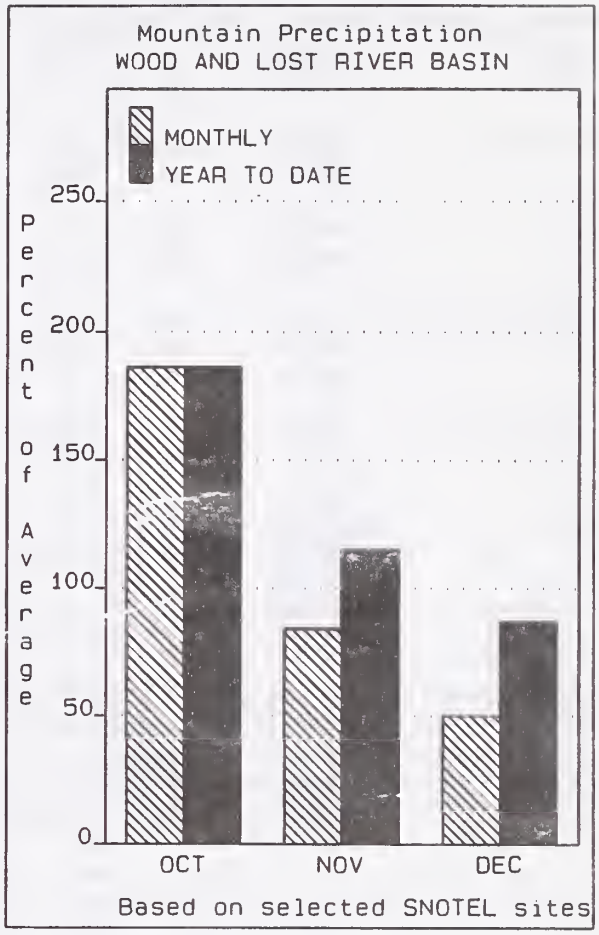
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1991	✓ (2)	✓ (2)	✓ (2)	✓ (3)	(3)	✓ (2)						
92	(2)											

NAL-369 (4/82) CSR HOLDINGS RECORDS USDA-S&E

Big Wood, Little Wood, Big Lost, and Little Lost River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

October precipitation was much above normal for the Wood and Lost basins, 185% of normal, and above normal in November. December was much drier, however, with only 50% of normal precipitation falling. The snowpack ranges from 102% of normal for the Little Lost River to 58% of normal for Camas Creek. Even though the current snowpack is 147% to 224% of last year's snowpack at this time, streamflow forecasts indicate runoff will be much below average for the Wood basins and below normal for the Lost basins. Magic Reservoir is nearly empty, just like last year, with only 8% of capacity (18% of average). Water users in the valley should be prepared for another year with below average water supplies and should keep in touch with their local irrigation district for more specific information.

BIG WOOD, LITTLE WOOD, BIG LOST, AND LITTLE LOST RIVER BASIN
Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
BIG WOOD nr Bellevue	APR-SEP	33	93	133	62	173	235	214
	APR-JUL	24	83	122	62	162	220	198
BIG WOOD bl Magic Dam (2)	APR-SEP	60	147	205	61	265	350	338
	APR-JUL	50	135	193	60	250	335	322
LITTLE WOOD nr Carey	APR-SEP	26	55	74	69	93	122	107
	APR-JUL	22	49	68	69	87	114	99
BIG LOST at Howell Ranch nr Chilly	APR-SEP	120	158	184	84	210	250	219
	APR-JUL	100	136	161	84	186	220	192
	APR-JUN	80	107	125	84	143	170	148
BIG LOST bl Mackay Reservoir (2)	APR-SEP	91	124	147	75	170	205	195
	APR-JUL	69	101	123	76	145	177	162
LITTLE LOST bl Wet Ck	APR-SEP	22	29	33	83	38	44	40
	APR-JUL	18.0	23	27	84	31	36	32
LITTLE LOST nr Howe	APR-SEP	28	33	37	84	41	46	44
	APR-JUL	21	25	28	85	31	35	33

BIG WOOD, LITTLE WOOD, BIG LOST, AND LITTLE LOST RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	15.9	16.4	89.0
LITTLE WOOD	30.0	3.2	8.7	13.5
CAREY VALLEY		NO REPORT		
MACKAY	44.5	16.4	13.7	26.4

BIG WOOD, LITTLE WOOD, BIG LOST, AND LITTLE LOST RIVERS
Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Magic	8	186	89
Camas Creek	3	190	58
Big Wood Total	11	186	83
Little Wood River	3	208	92
Fish Creek	0	0	0
Big Lost River	4	224	96
Little Lost River	3	165	102

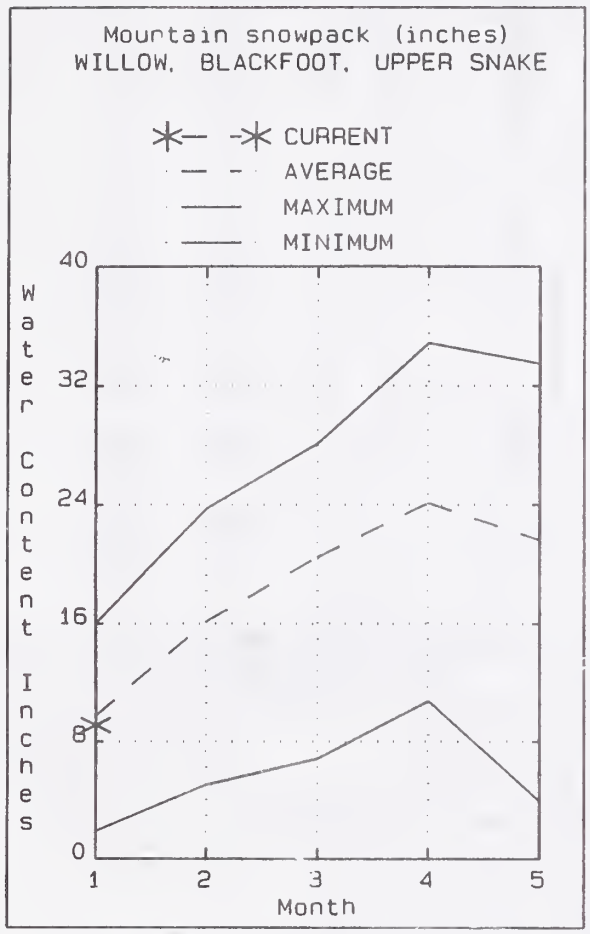
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

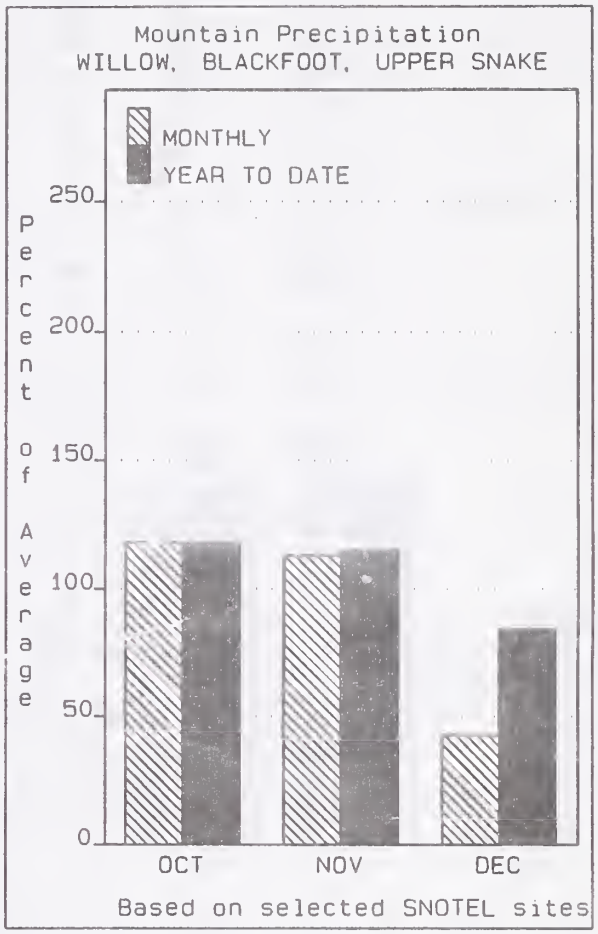
The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Willow Creek, Blackfoot, Upper Snake, and Portneuf River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

Fall precipitation in eastern Idaho was near normal in October and much above normal in November. Disappointingly, only 43% of normal precipitation fell during December. Current snowpack conditions are above average at the headwaters of the Henrys Fork and Teton rivers. The rest of the basin reports near average conditions except for the Blackfoot and Portneuf rivers which are approximately 75% of normal. Streamflow forecasts range from 75% for the Portneuf to 93% for the Teton and Snake near Heise. Combined storage in nine reservoirs on the upper Snake is 92% of average. Unless precipitation patterns change drastically during the remainder of the snow season, water users should have an adequate water supply for the 1992 irrigation season.

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF RIVER BASIN
Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
HENRYS FORK nr Ashton (2)	APR-SEP	580	645	685	92	725	790	746
	APR-JUL	440	485	515	92	545	590	557
HENRYS FORK nr Rexburg (2)	APR-SEP	995	1230	1390	87	1550	1790	1595
	APR-JUL	775	965	1090	87	1220	1400	1260
FALLS nr Squirrel (1,2)	APR-JUL	240	305	335	90	365	430	373
TETON ab S Leigh Ck nr Driggs	APR-SEP	142	164	180	93	196	220	194
	APR-JUL	105	122	134	92	146	163	145
TETON nr St. Anthony	APR-SEP	335	390	430	90	470	525	479
	APR-JUL	275	320	350	90	380	425	387
SNAKE nr Moran (1,2)	APR-SEP	545	740	830	93	920	1110	888
PALISADES RESERVOIR inflow (1,2)	APR-SEP	2110	3100	3550	92	4000	4990	3852
SNAKE nr Heise (2)	APR-SEP	2530	3320	3850	93	4380	5170	4142
	APR-JUL	2140	2810	3260	93	3710	4380	3524
SNAKE nr Blackfoot (1,2)	APR-SEP	2770	4380	5110	90	5840	7450	5680
	APR-JUL	2220	3520	4110	90	4700	6000	4589
PORTNEUF at Topaz	MAR-SEP	52	70	82	75	94	112	109
	MAR-JUL	41	56	66	75	76	91	88

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ISLAND PARK	127.6	87.5	81.9	88.9
GRASSY LAKE	15.2	11.7	13.0	10.4
JACKSON LAKE	824.7	647.4	657.4	525.6
PALISADES	1357.0	767.8	344.2	1013.1
AMERICAN FALLS	1700.0	825.4	740.2	1002.4
BROWNLEE	975.3	941.7	780.4	825.8
BLACKFOOT	348.7	97.1	80.3	230.6
HENRYS LAKE	90.4	80.2	78.5	74.0
RIRIE	96.5	45.5	43.5	45.4

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF RIVER
Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Camas - Beaver Creeks	4	206	96
Henrys Fork River	10	140	117
Teton River	7	116	102
Snake above Jackson Lake	10	118	98
Pacific Creek	3	96	91
Gros Ventre River	2	83	89
Hoback River	5	95	97
Greys River	5	106	93
Salt River	6	113	99
Snake above Palisades	26	108	97
Willow Creek	8	93	98
Blackfoot River	3	90	79
Portneuf River	4	82	74
Toponce Creek	0	0	0
Snake abv American Falls	39	103	94

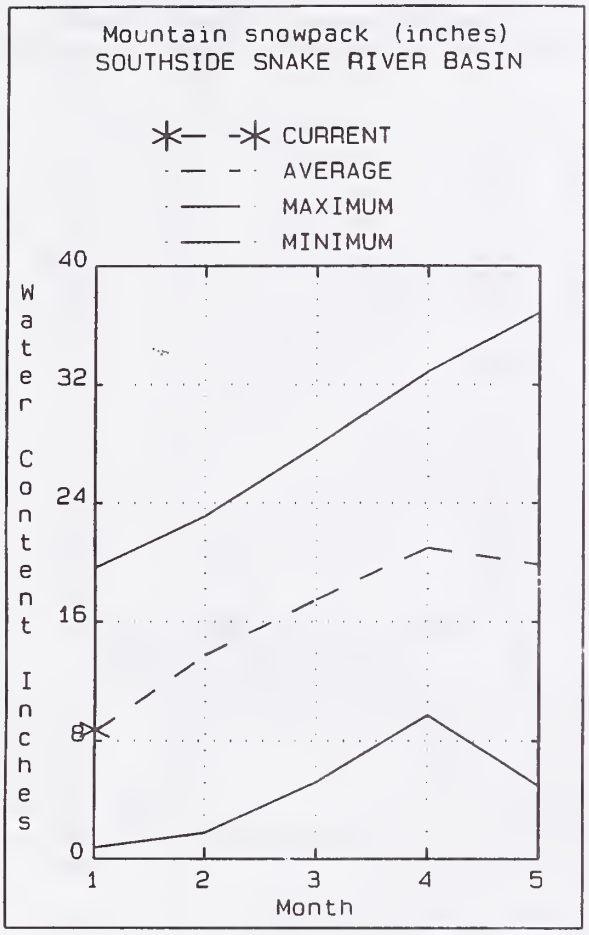
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

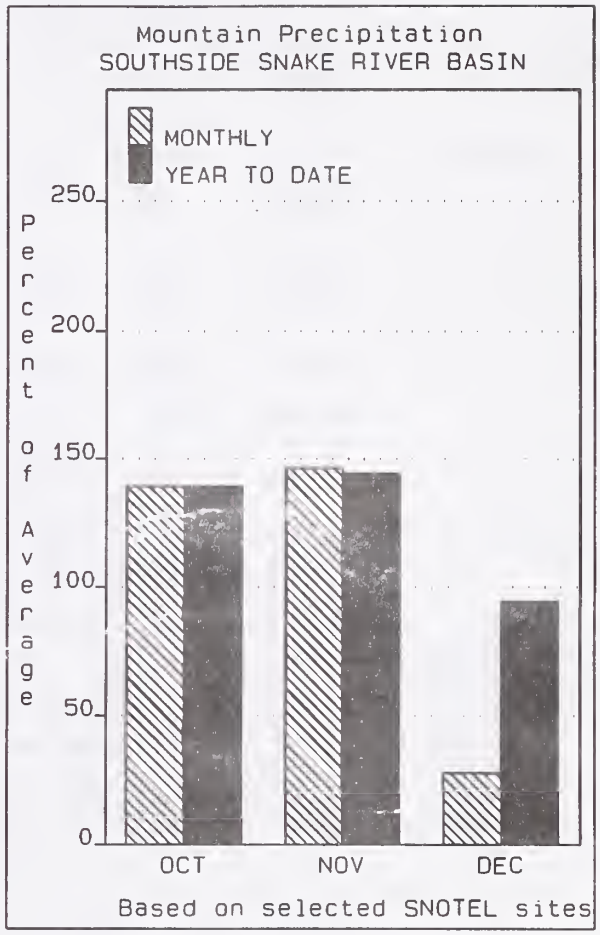
The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Southside Snake River Basin

January 1, 1992





WATER SUPPLY OUTLOOK

The southside Snake area received the lowest amounts of December precipitation in Idaho with only 28% of normal. Currently, snowpack conditions range from 109% of normal on the Salmon Falls Creek basin to 63% of normal for the Owyhee basin. Current reservoir storage is well below normal in Oakley, Salmon Falls, and Owyhee reservoirs. Streamflow forecasts range from 59% for the Owyhee Reservoir inflow to 90% on the Bruneau River. The remainder of the snow accumulation season will be critical in determining the water supply picture for the area. Water users should stay in contact with their local irrigation district for more specific information.

SOUTHSIDE SNAKE RIVER BASIN

Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	25-Yr Avg. (1000AF)
OAKLEY RESERVOIR inflow	MAR-SEP	16.0	24	30	79	36	44	38
	MAR-JUL	14.0	22	27	77	32	40	35
SALMON FALLS CK nr San Jacinto	MAR-SEP	42	67	84	82	101	126	102
	MAR-JUL	39	64	80	82	96	121	97
	MAR-JUN	39	61	76	84	91	113	91
BRUNEAU nr Hot Spring	MAR-SEP	131	193	235	90	275	340	260
	MAR-JUL	121	180	220	89	260	320	248
OWYHEE nr Gold Ck (2)	MAR-JUL	6.0	16.0	23	70	30	41	33
OWYHEE nr Owyhee (2)	APR-JUL	6.0	37	58	67	79	110	86
OWYHEE nr Rome	FEB-JUL	44	250	390	61	530	735	638
OWYHEE RESERVOIR inflow (1,2)	APR-SEP	14.0	122	265	59	410	725	452
	FEB-JUL	67	285	430	64	575	890	668

SOUTHSIDE SNAKE RIVER BASIN

Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	77.4	7.1	7.0	23.7
SALMON FALLS	182.6	12.4	11.8	44.9
OWYHEE	715.0	94.4	200.7	421.0

SOUTHSIDE SNAKE RIVER BASIN

Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	1	188	113
Goose-Trapper Creeks	2	138	99
Salmon Falls Creek	4	120	109
Bruneau River	5	115	96
Owyhee River	7	101	63

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The streamflow and reservoir averages are for the 1961-1985 period, and the snowpack averages are for the 1961-1990 period.

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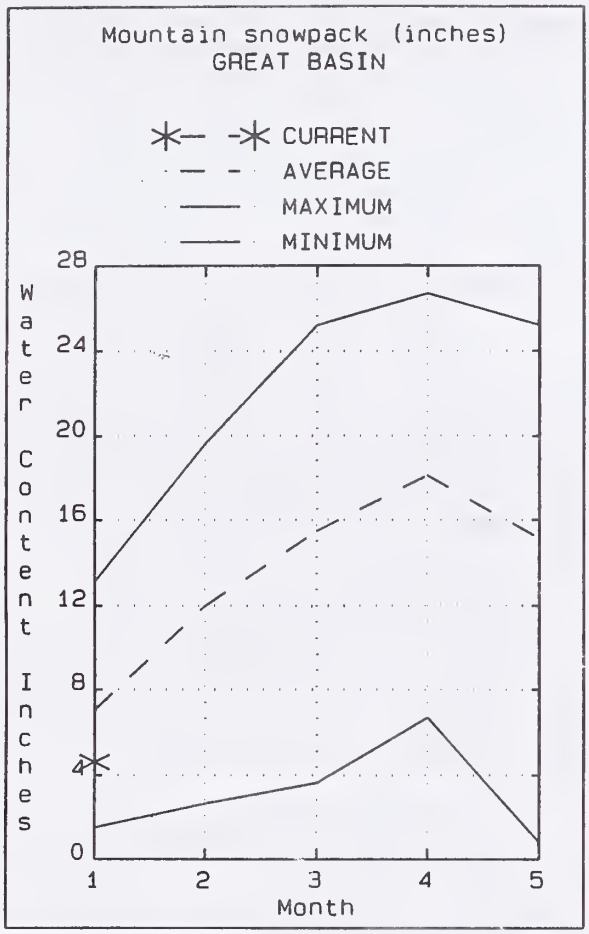
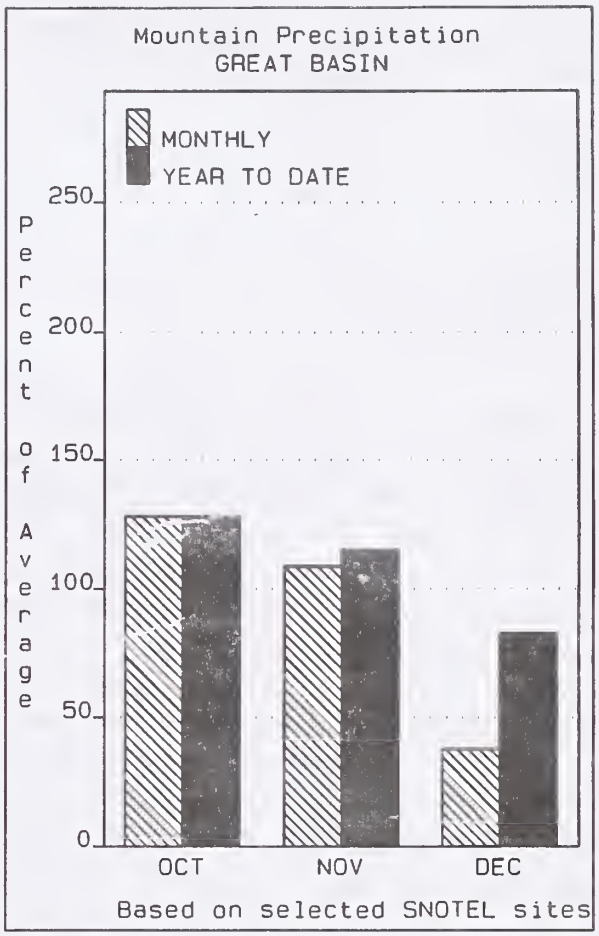
Great Basin

January 1, 1992





WATER SUPPLY OUTLOOK

Mountain precipitation in this area was off to a good start in October with 128% average of moisture falling. November precipitation was slightly above average, but December received only 38% of average precipitation. The snowpack on the Bear River above Harer is 76% of normal. Reservoir storage is below normal with Bear Lake reporting 46% of normal and Montpelier Creek Reservoir at 56% of normal. The streamflow forecast for the Bear River near Harer is 79% of average and for the Cub River near Preston is 73%. Water users should be prepared for below normal water supplies and should stay in touch with their local irrigation district.

GREAT BASIN

Streamflow Forecasts - January 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BEAR RIVER near Harer	APR-SEP	93	183	245	79	305	395	345
MONTPELIER CK nr Montpelier	APR-SEP	1.8	6.7	10.0	72	13.3	18.2	13.9
CUB RIVER near Preston	APR-SEP			38	73			52
	APR-JUL	14.0	26	35	75	44	57	47

GREAT BASIN

Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	457.0	479.5	992.6
MONTPELIER CREEK	4.0	1.0	0.5	1.8

GREAT BASIN

Watershed Snowpack Analysis - January 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Bear River (above Harer)	8	107	76
Montpelier Creek	2	99	64
Mink Creek	1	87	68
Cub River	2	95	85
Malad River	1	61	51

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, contact:

How forecasts are made

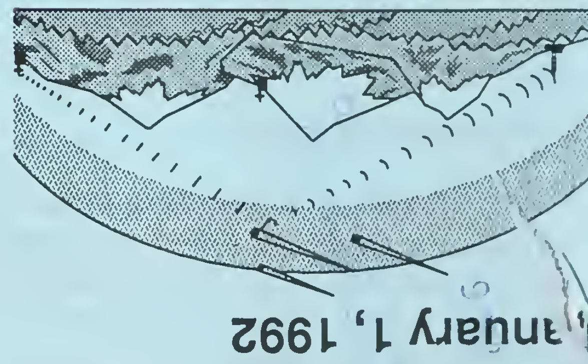
Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

Basin Outlook Reports

January 1, 1992



United States
Department of
Agriculture

Soil
Conservation
Service

3244 Elder Street
Room 124
Boise, ID 83705-4711

In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

Issued by

William (Bill) Richards
Chief
Soil Conservation Service
U.S. Department of Agriculture

Released by

Paul H. Calverley
State Conservationist
Soil Conservation Service
Boise, Idaho

Prepared by

Peter L. Palmer, Data Collection Office Supervisor
Philip S. Morrisey, Hydrologist
Ronald T. Abramovich, Hydrologist
Gini Broyles, Statistical Assistant
Bill J. Patterson, Electronics Technician
D. Rick Eastlund, Electronics Technician
Bill F. Hartman, Hydrologic Technician
Michael Gibbons, Computer Clerk